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Chronic Kidney Disease for the PCP

Lilli Flink, MD

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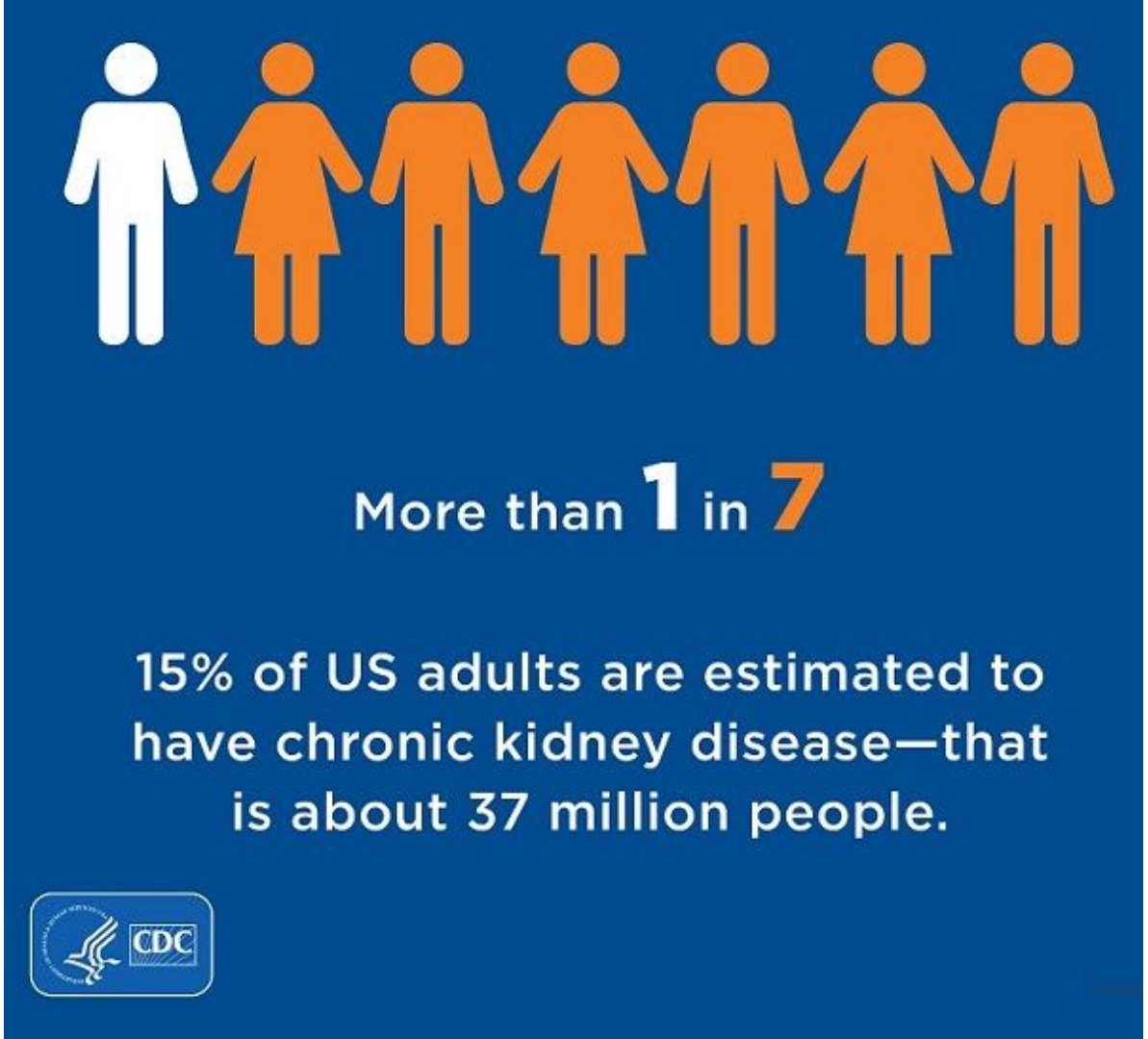
Lilli Flink, MD
PGY-2
Department of Family & Community Medicine

Jefferson
Thomas Jefferson University
HOME OF SIDNEY KIMMEL MEDICAL COLLEGE



- 90% of adults with CKD are unaware of their condition
- 40% of adults with **severe** CKD are unaware of their condition

Learning Objectives

- Define CKD
- Review screening guidelines for CKD
- Review staging of CKD
- Outline diagnostic approach
- Review primary care management
- Understand indications for referral to specialty care

We will NOT cover

- Diagnosis or management of AKI
- In-depth management of advanced/end-stage disease
- Management of patients with renal transplant
- Management of CKD in pediatric patients
- Pharmacologic adjustments in CKD
- IV contrast prophylaxis or management

Definition

- Abnormal kidney structure or function
- GFR <60 or urinary albumin >30 mg/day
- Must be present for >3 months

Chronic kidney disease is not a primary diagnosis

Role of the PCP

- **Screening**
- Slowing disease progression
- Preventing complications

Our Patient

WH is a 55-year-old male presenting to clinic for an initial visit to establish care. He reports a past medical history of type 2 diabetes, hyperlipidemia, coronary artery disease s/p CABG, peripheral vascular disease s/p R BKA, and peptic ulcer disease.

VS: BP 125/85 HR 88 T 98F O2 98%
PE: Normal exam with exception of right BKA with prosthesis

The Plan

WH brought his medication bottles with him. They include:

- Aspirin 81 mg
- Carvedilol BID
- Dulaglutide
- Rosuvastatin
- Ramipril
- Insulin
- Metformin
- Tamsulosin

He has not seen a PCP in some time. **What labs or screening do you want to order?**

Who do we screen?

Universal screening is *not* recommended

"The U.S. Preventive Services Task Force found insufficient evidence to assess the balance of benefits and harms of screening for chronic kidney disease in the general population, and the American College of Physicians recommends against screening asymptomatic adults without risk factors."

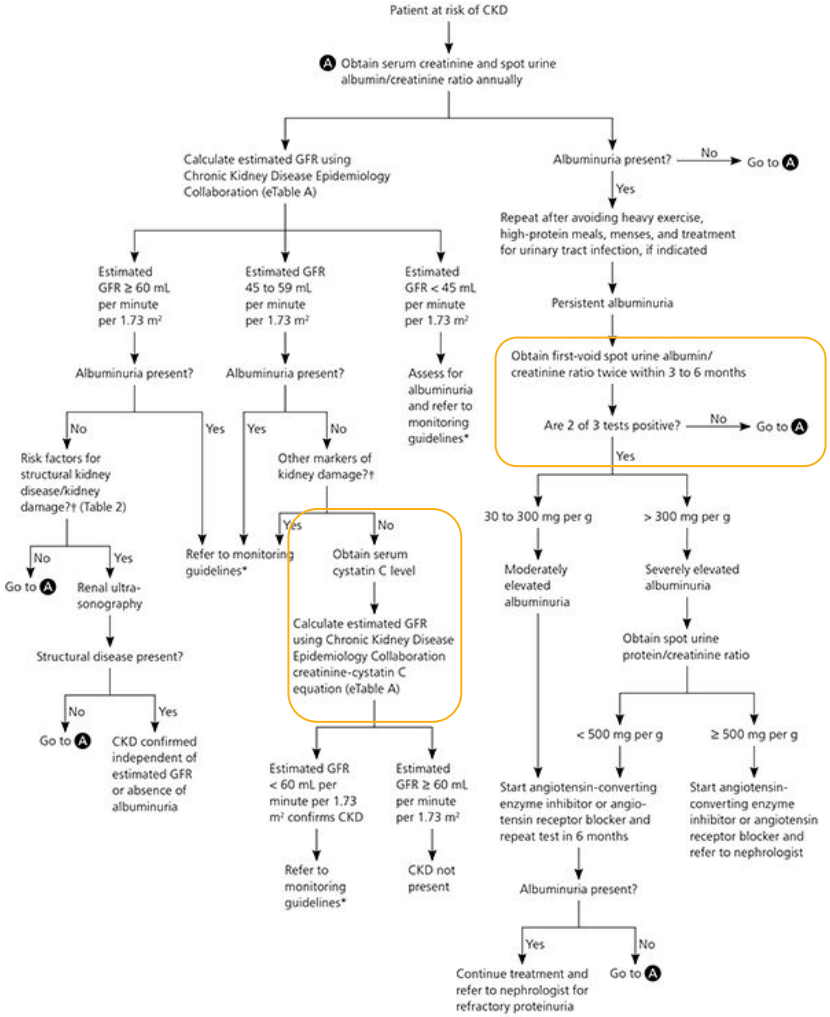
Screening At-Risk Populations

Diabetes and hypertension are the leading causes of kidney failure in the US, accounting for 75% of *new* cases of CKD

Additional risk factors: age >60 yrs, family history of kidney disease, cardiovascular disease, obesity

Screening Method

- Measure eGFR and proteinuria
- Urine Albumin/Creatinine ratio
- **Creatinine alone is not sufficient**



Courtesy of AAFP

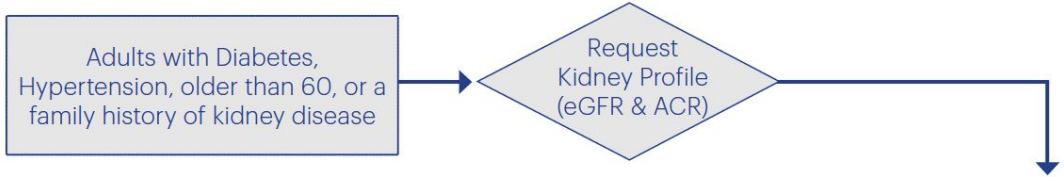
Lab Results

Creatinine: 1.21

eGFR: 67

Albumin/Creatinine: 391 mg/g

Previous albumin/Cr: 354 mg/g 1 year ago



CKD is classified on the basis of:

- Cause (C)
- GFR (G)
- Albuminuria (A)

GFR categories (mL/min/1.73m²) Description and range				Albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severly increased
				<30 mg/g <3 mg/mmol	30-299 mg/g 3-29 mg/mmol	≥300 mg/g ≥30 mg/mmol
	G1	Normal or high	≥90	1	1	2
	G2	Mildly decreased	60-89	1	1	2
	G3a	Mildly to moderately decreased	45-59	1	2	3
	G3b	Moderately to severely decreased	30-44	2	3	3
	G4	Severely decreased	15-29	3	3	4+
	G5	Kidney failure	<15	4+	4+	4+

Initial Workup

- Thorough history and physical
- Exposure to nephrotoxins
- Blood pressure, diet, weight history
- Electrolytes
- Lipids, A1c

Other Causes of CKD

- Medications
- SLE
- HIV
- CHF
- Hepatorenal syndrome
- Nephrolithiasis
- Benign prostatic hyperplasia
- Glomerulonephritis
- Multiple myeloma
- Genetics

When to image

- Not routinely indicated
- Ultrasound when there is a history of urinary tract stones or obstruction, frequent UTIs, or a family history of polycystic kidney disease

Role of the PCP

- Screening
- **Slowing disease progression**
- Preventing complications

RAS Blockade

- ACE inhibitors are recommended treatment for nondiabetic CKD over ARBs
- **Use of an ACE inhibitor in CKD is associated with a 31% reduction in end stage renal disease**

Our patient

- WH meets criteria for G2, A3 diabetic kidney disease
- He is already on an ACE inhibitor
- Hgb A1c is 9.2
- Blood pressure is well controlled
- **Which other medication would he benefit from?**

Treatment in Diabetic Kidney Disease

- ACE inhibitors + ARBs are **equally beneficial** at slowing nephropathy in diabetic CKD
- Dual ACE inhibitors + ARBs are not beneficial and have harmful effects
- Initiate SGLT2 inhibitor, especially in patients with **severe albuminuria**

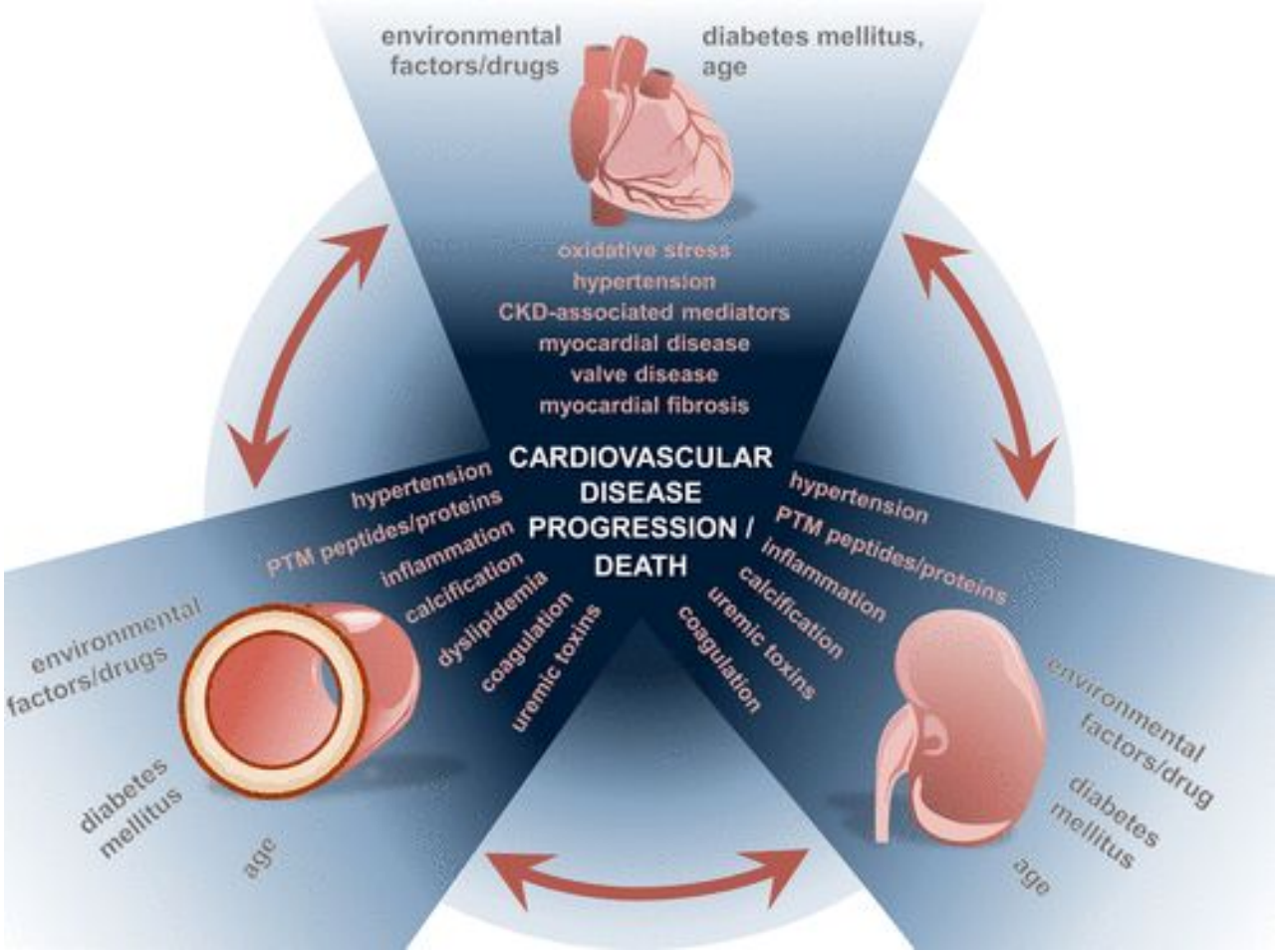
Frequency of monitoring

PROTEINURIA

- At risk populations: screen annually
- DKD: every 3-6 months
- CKD 3: twice yearly
- CKD 4: four times yearly

PCP Management

- Blood pressure: goal <130/80 (per ACC/AHA 2017 guideline)
- Blood glucose: A1c goal 7%
- Lifestyle: smoking cessation
- Diet: recommend <2000 mg sodium daily



Courtesy of AHA

Aspirin & CKD

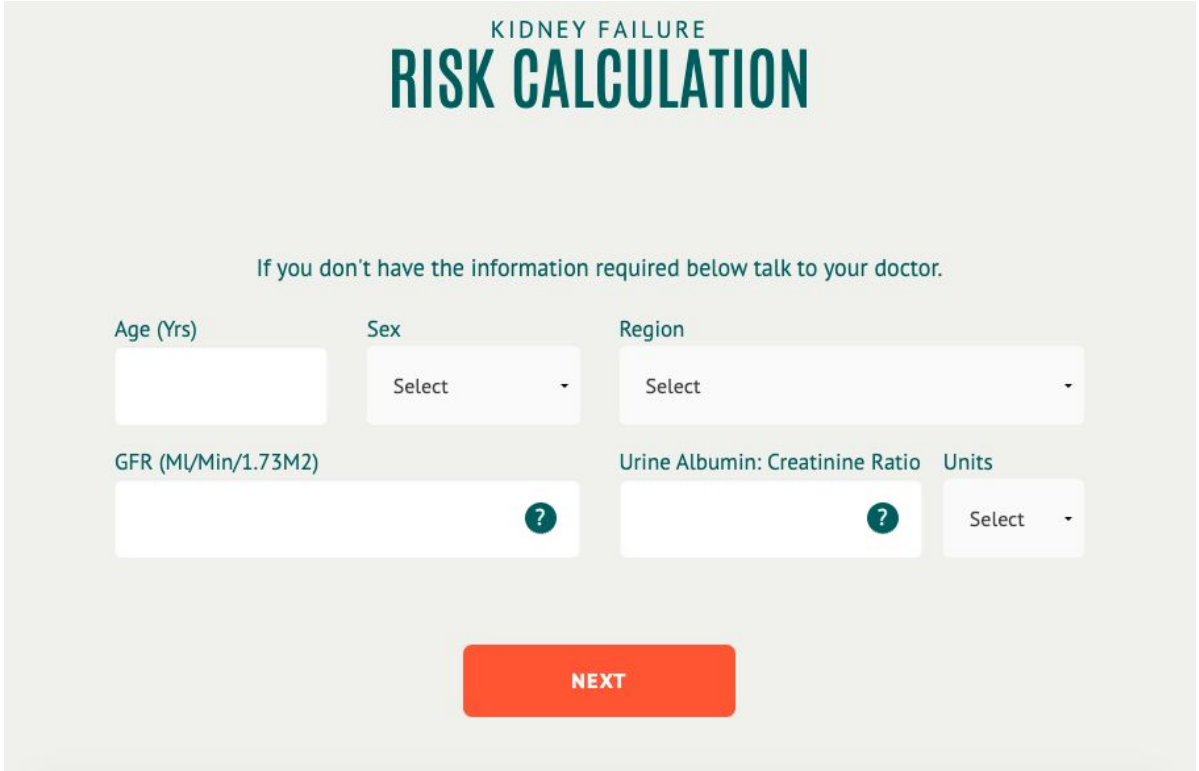
- Primary prevention: insufficient data to suggest empiric use or avoidance of aspirin

- Ongoing clinical trial, **A**spirin **t**o **T**arget **A**rterial Events in **C**hronic **K**idney Disease (ATTACK) looking at risk reduction of MI and stroke in CKD with daily aspirin use

Our Patient's Prognosis

- He is on an ACE inhibitor and an SGLT-2 inhibitor was started
- Blood pressure is well controlled, weight is in a healthy range
- **What is his prognosis in the long term?**

Prognosis


KIDNEY FAILURE
RISK CALCULATION
If you don't have the information required below talk to your doctor.
Age (Yrs)
Sex
Select
Region
Select
GFR (Ml/Min/1.73M2)
Urine Albumin: Creatinine Ratio
Units
Select
NEXT

YOUR RESULTS

391 mg/g
URINE ALBUMIN

M
SEX

55
AGE

67 mL/min/1.73 m2
GFR

STAGE 2

MILD DECREASE IN FUNCTION

CKD STAGES | GLOMERULAR FILTRATION RATE

Patient risk of progression to kidney failure requiring dialysis or transplant:

AT 2 YEARS	AT 5 YEARS
0.18 %	0.57 %

Risk thresholds used in health systems include:

- 3-5 % over 5 years for referral to a kidney doctor
- 10 % over 2 years for team based care (Kidney Doctor, Nurse, Dietician, Pharmacist)
- 20-40 % over 2 years for planning a transplant or fistula

HOW CAN I REDUCE MY RISK OF KIDNEY FAILURE?

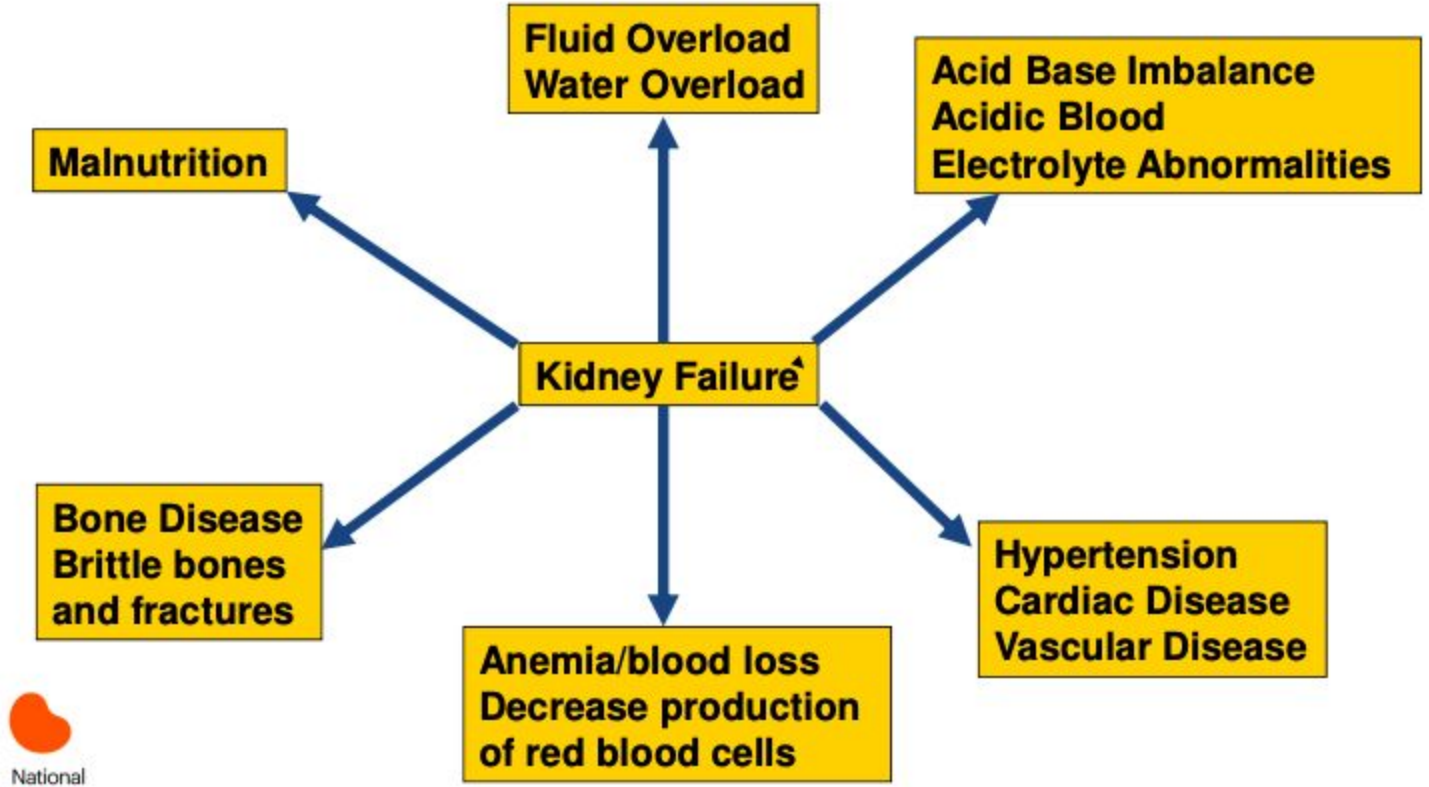
There are things you can do to reduce your risk of kidney failure over the next five years. Click below to see how the following will decrease your risk.

- (●) Your current 5 year risk based on the answers you provided is 0.57%
- ( ) Achieving good blood pressure control can reduce your 5 year risk from 0.57% to 0.45%.
- ( ) An ACE inhibitor (pril) or ARB (sartan) can reduce your 5 year risk from 0.57% to 0.40%.
- ( ) An SGLT2 inhibitor (gliflozin) can reduce your 5 year risk from 0.57% to 0.31%.

The benefits of these changes can add up over time.

Role of the PCP

- Screening
- Slowing disease progression
- **Preventing complications**



Courtesy of National Kidney Foundation

Screening Intervals for Complications of CKD

METABOLIC BONE DISEASE

- Stage 3: measure calcium, phosphorus, bicarbonate, PTH, ALP, and vitamin D once as a baseline
- Stage 4: PTH, calcium, phosphorus every 3 months
- Stage 5: calcium and phosphorus monthly

Anemia

- Usually due to iron deficiency rather than erythropoietin deficiency
- Measure Hgb **annually** in CKD stage 3

Bone Density

- Stage 1-3a CKD patients can be screened according to general osteoporosis guidelines
- CKD is not a specific indication for osteoporosis screening, not recommended to test routinely
- Not indicated to routinely prescribe vitamin D without known vitamin deficiency

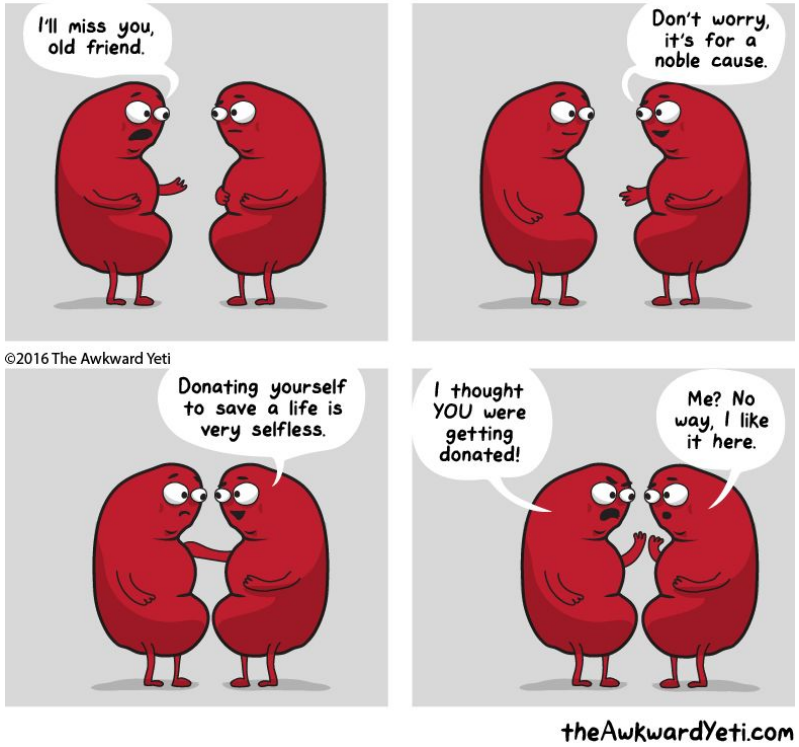
When to refer to Nephrology

- GFR <30
- Significant albuminuria
- Rapid drop in GFR
- Unexplained or persistent hematuria
- Secondary hyperparathyroidism
- HTN refractory to treatment with >4 agents
- Recurrent nephrolithiasis
- Unknown cause of CKD

Summary

- Screen at risk populations (DM + HTN)
- ACE, ACE baby
- Identify the cause and timeline of altered kidney function
- Minimize risk factors: statin, smoking cessation, blood pressure, blood sugar
- Monitor for complications starting at CKD stage 3
- Don’t be afraid to refer to nephrology

Questions?



www.newyorker.com

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Thank you!


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